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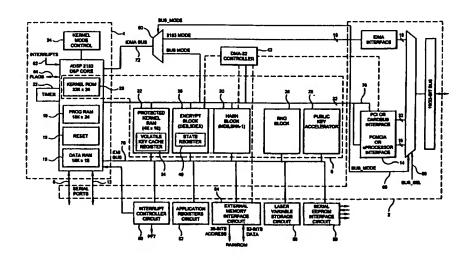
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(57) Abstract

A secure communication platform on an integrated circuit is a highly integrated security processor which incorporates a general purpose digital signal processor (DSP) (62), along with a number of high performance cryptographic function elements, as well as a PCI and PCMCIA (14) interface. The secure communications platform is integrated with an off-the-shelf DSP so that a vendor who is interested in digital signal processing could also receive built-in security functions which cooperate with the DSP. The integrated circuit includes a callable library of cryptographic commands and encryption algorithms. An encryption processor is included to perform key and data encryption, as well as a high performance hash processor and a public key accelerator (28).

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US CL	:380/25,49,2					
	to International Patent Classification (IPC) or to be	oth national classification	n and IPC			
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	data base consulted during the international search (consulted Extra Sheet.	(name of data base and,	where practicabl	e, search terms used)		
C. DOC	CUMENTS CONSIDERED TO BE RELEVANT					
Category*	Citation of document, with indication, where	appropriate, of the relev	ant passages	Relevant to claim No.		
Y	US 4,987,595 A (MARINO, JR. et al.) 22 January 1991, abstract, col.3, lines 15-20, col.4, lines 20-49, fig.1					
Y	US 5,631,960 A (LIKENS et al.) 20 col.6, lines 16-45, col.,7 lines 11-23.	lines 39-48,	1-15			
A	US 5,557,346 A (LIPNER et al) 17 September 1996, fig.1, col.9, lines 11-20, col.13, lines 46-58, col.15, lines 51-59					
A	US 5,623,545 A (CHILDS et al) 22 col.5, lines 56-67, col.6, lines 1-10	, lines 5-23,	1-20,28-30			
X Purth	er documents are listed in the continuation of Box	C. See patent	family annex.			
-	ncial ostegories of cited documents:	date and not in	conflict with the appli	restional filing data or priority cation but cited to understand		
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		PC17US98/19:	310				
C (Continue	C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT						
Category*	Citation of document, with indication, where appropriate, of the relevant	ant passages	Relevant to claim No.				
А,Р	US 5,721,777 A (BLAZE) 24 February 1998, col.2, lin col.3, lines 1-18, 31-43, col.4, lines 41-63, col.6, lines 9	1-17,23-30					
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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED Electronic data bases consult	ed (Name of data base	and where practical	ble terms used):		
APS, DIALOG search terms: key recovery, key escrow, hash, smart card, token card, secure kernel, diffic heilman, public key, plural algorithm, encryption algorithm, multiple algorithm, random key, random number generator					